

(12) **United States Patent**  
**Hecht**

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(54) **CUTTING TOOL AND REPLACEABLE CUTTING HEAD HAVING SPIRAL DRIVEN SURFACES THEREFOR**

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(58) **Field of Classification Search**

CPC .. **B23B 51/02**; **B23B 2251/02**; **B23B 31/113**; **B23B 2240/04**

See application file for complete search history.

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(57) **ABSTRACT**

A replaceable cutting head includes a forward cutting portion and a rearward mounting portion. The mounting portion includes a male coupling member that protrudes rearwardly from a base surface. The male coupling member includes three circumferentially spaced apart head fixation members, where each head fixation member has a head peripheral surface that spirals inwardly in a direction against the direction of rotation and diverges. A tool holder includes a female coupling member extends rearwardly from a holder forward surface. The female coupling member includes three circumferentially spaced apart holder fixation members, where each holder fixation member has a holder peripheral surface that diverges rearwardly. When a cutting tool, which includes said cutting head and tool holder, is in a locked position, the male coupling member of the replaceable cutting head is removably retained within the female coupling member of the tool holder by means of a self-lock mechanism.

**29 Claims, 8 Drawing Sheets**

